# NASA's Airspace Systems Program


## NExTNAS CNS Workshop

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# AS Goals and Objectives

## Goal:

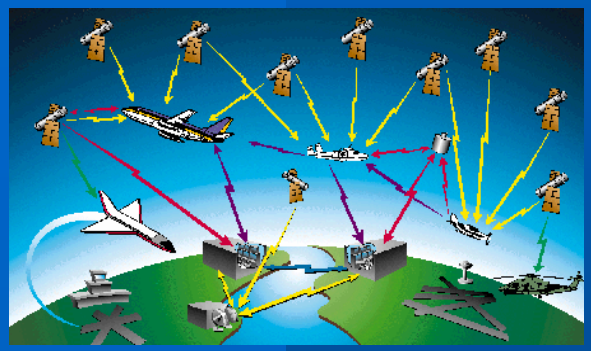
*Enable major increases in the capacity and mobility of the air transportation system through development of revolutionary concepts for operations & vehicle systems*

## Objectives:

- *Improve throughput, predictability, flexibility, collaboration, efficiency, and access of the NAS*
  - *Enable general aviation and runway-independent aircraft operations*
- *Maintain system safety, security and environmental protection*
- *Enable modeling and simulation of air transportation operations*

# Current Airspace Systems Projects

## AATT Project '96-'04



*Improve gate-to-gate air traffic management to increase capacity & flexibility*

## VAMS Project '02-'06


*Explore advanced concepts & model/simulate the NAS*

## NExTNAS Project '04-'09

*Technologies to enable future conops for a more flexible & efficient NAS*

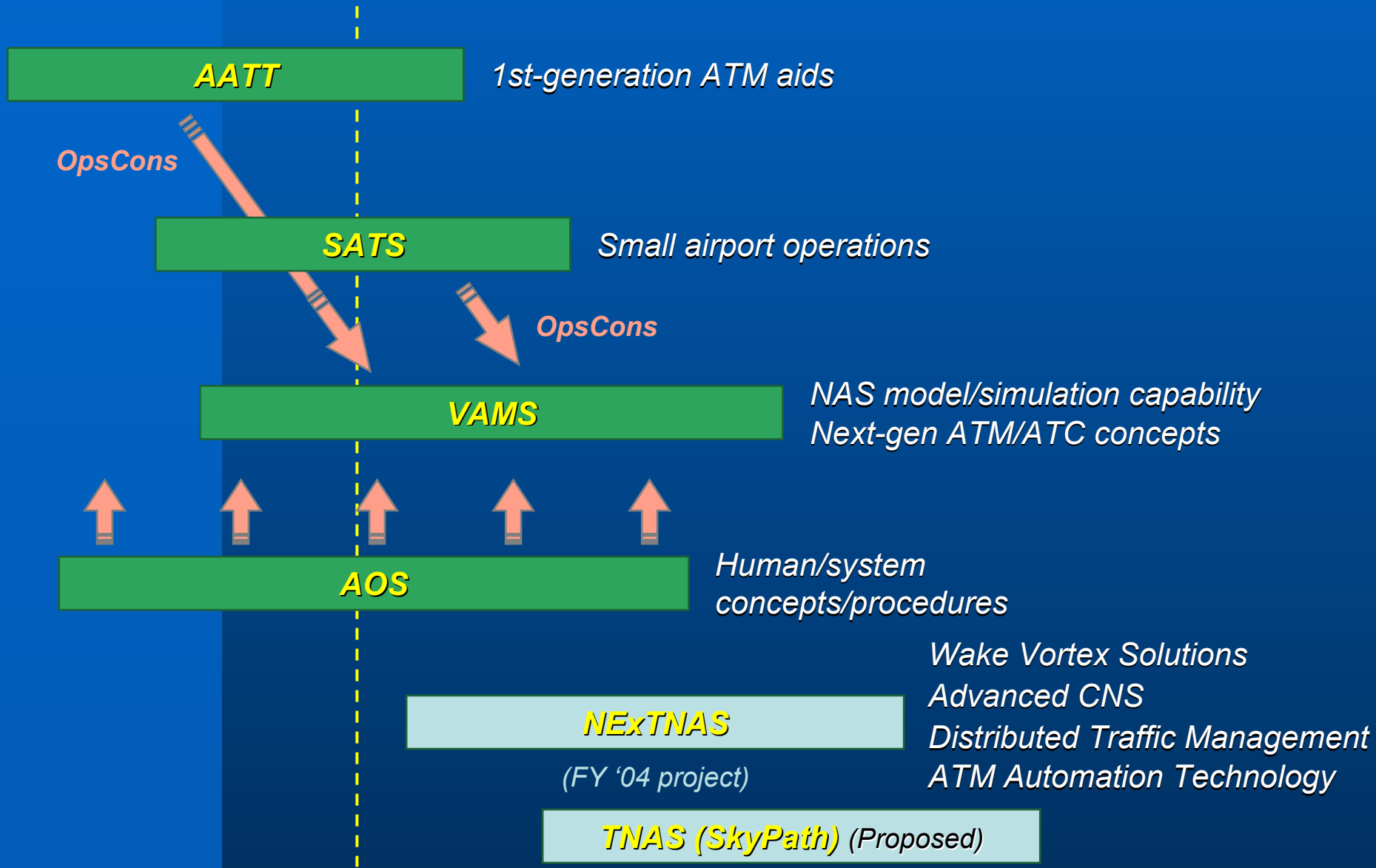
## SATS Project '01-'05

*Improve public mobility & community access with small aircraft/airports*

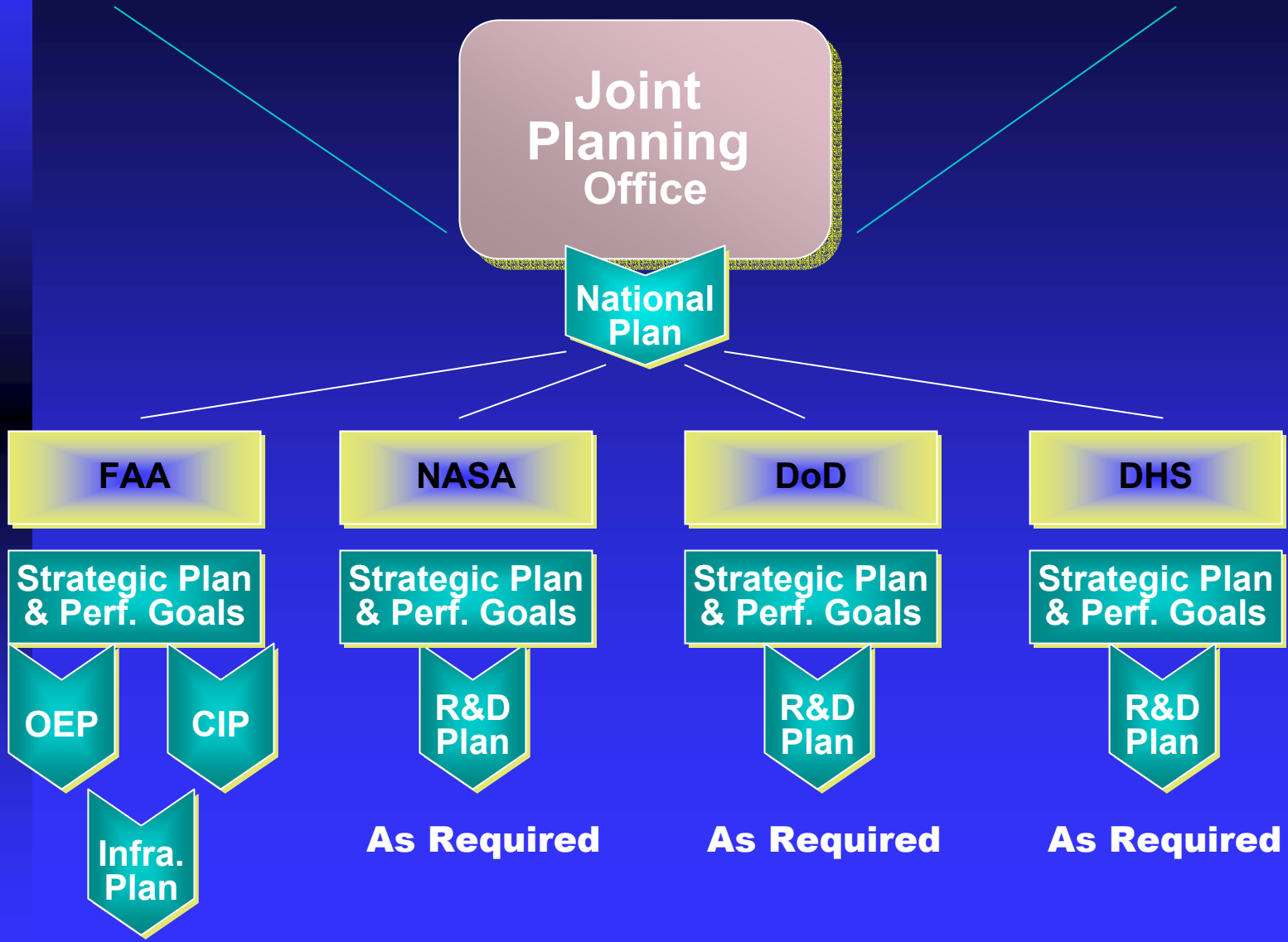
## AOS Project '00-'06

*Understand & model human/systems*

# Airspace Systems Program Portfolio



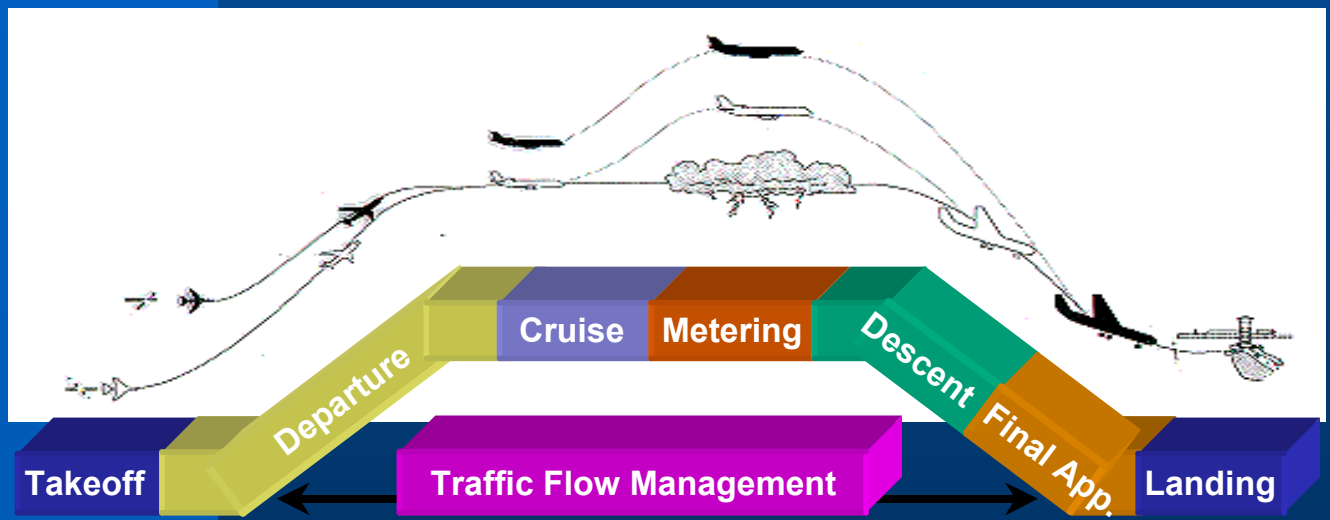
# Policy Board



# Advanced Air Transportation Technologies

*Improve the capacity of transport aircraft operations at, and between, major airports in the National Airspace System by:*

- *Developing decision support tools to help air traffic controllers, airline dispatchers, and pilots improve the air traffic management and control process from gate to gate*
- *Defining, exploring, and developing advanced shared-separation ATM concepts*




**Domains**

**En Route**

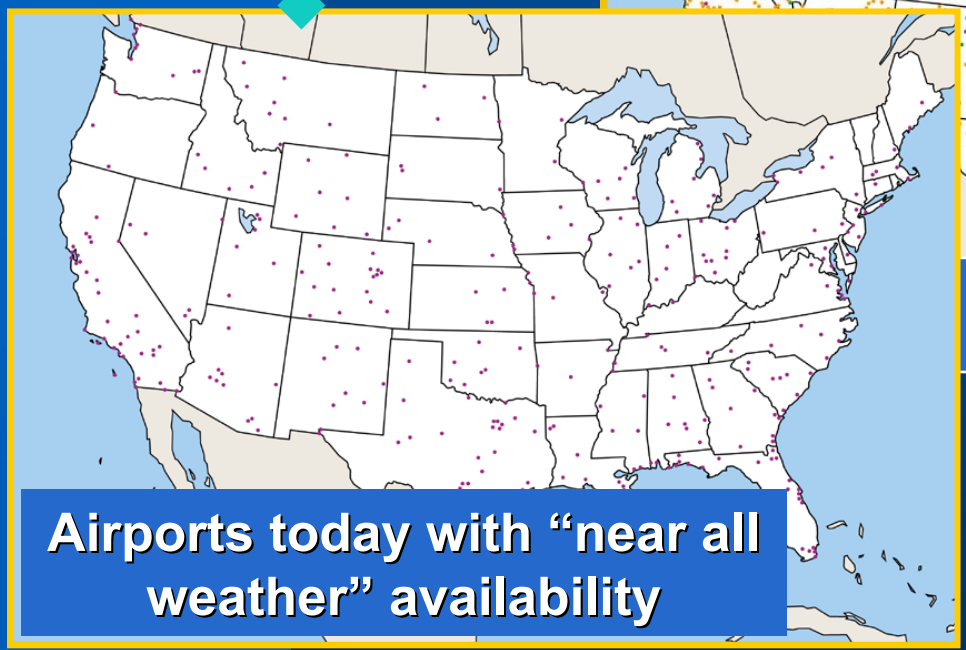
**Terminal**

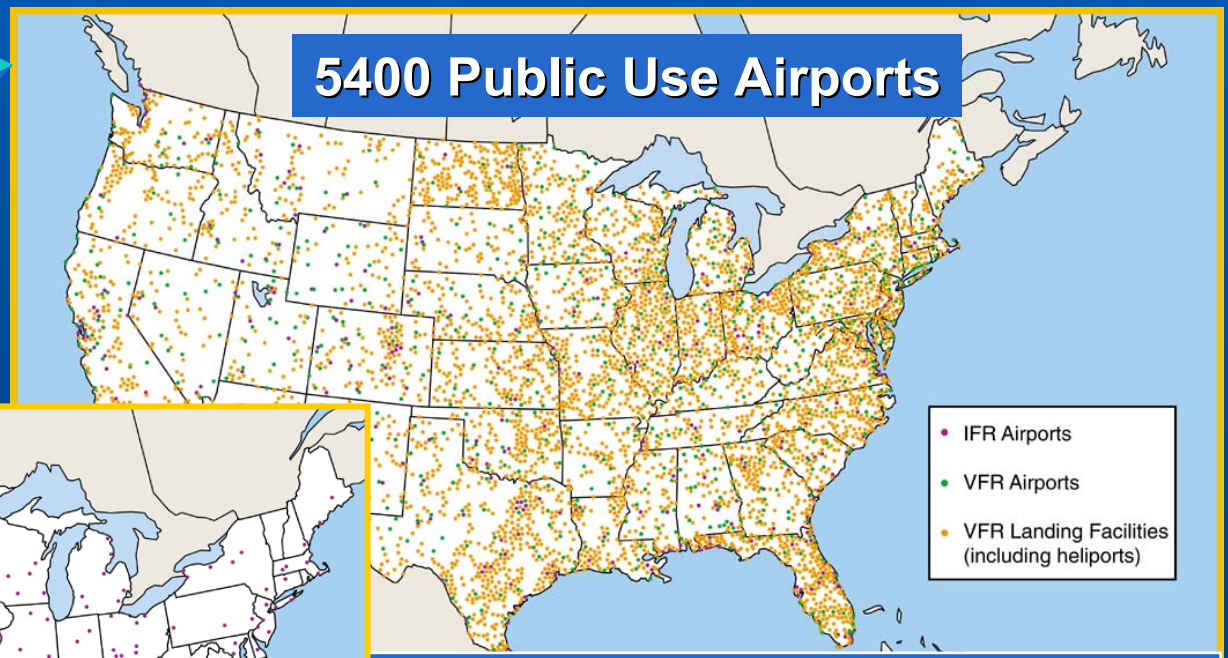
**Surface**

# Small Aircraft Transportation System

*Develop and demonstrate technologies to enable increased utilization of local & regional airports to enhance mobility*

***Expanded Accessibility to several times more destinations***



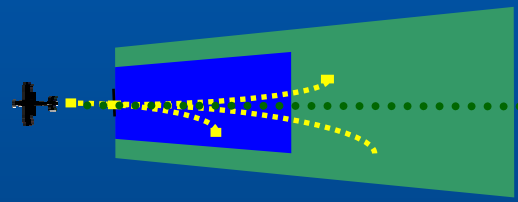




**Near all-weather accessibility to 5,400 public-use airports?**

**Of 5,400 public-use airports, only 715 (13%) have precision instrument approaches (ILS)**

# SATS Operating Capabilities

- *Higher Volume Operations (HVO) in Non-Radar Airspace and at Non-Towered Airports*
- *Lower Landing Minimums (LLM) at Minimally Equipped Landing Facilities*
- *Increase Single-Pilot Performance (SPP) Crew Safety & Mission Reliability*
- *En Route Procedures & Systems for Integrated (ERI) Fleet Operations*

# Virtual Airspace Modeling & Simulation

*Provide the technologies and processes for conducting trade-off analyses amongst future air transportation system's concepts and technologies*

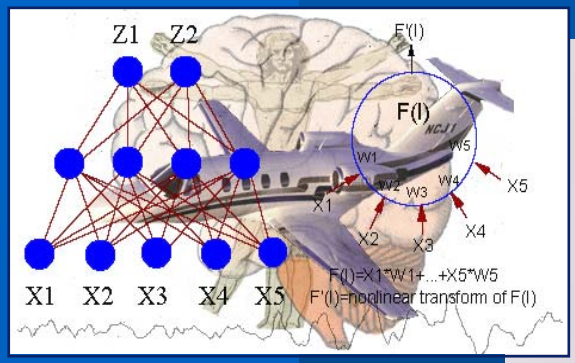
*Model and simulate behavior of air transportation system concepts and their elements*

*Develop advanced air transportation operational concepts*

*Conduct assessments of advanced air transportation concepts*

# Airspace Operations Systems

*Research on ground, satellite, vehicle systems, and their human operators that determine the operational safety, efficiency, and capacity of the National Airspace System*




*Operational human factors and error mitigation*

*Air traffic management systems, interfaces, and procedures*

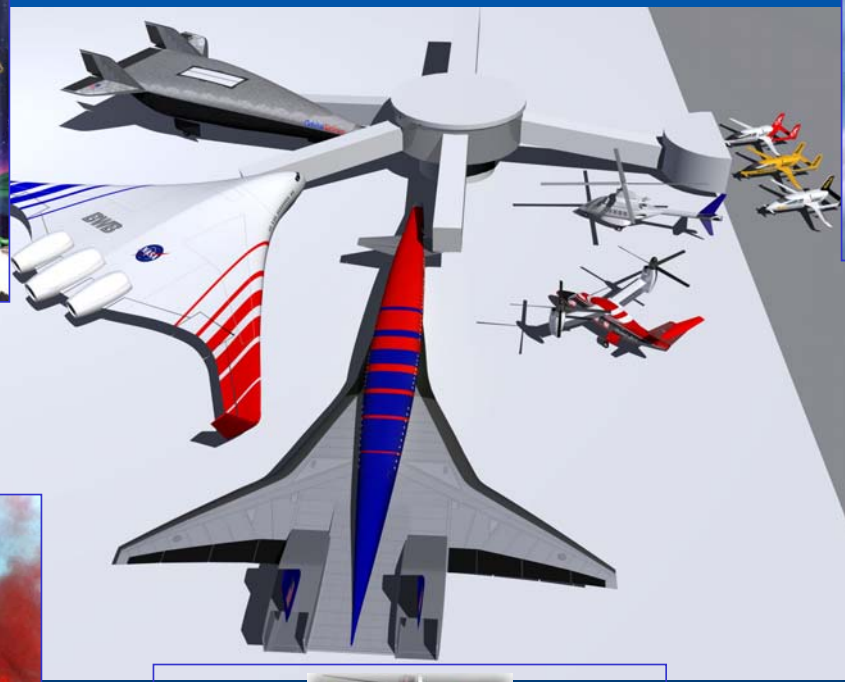
*Communication, navigation and surveillance systems*

*Cockpit systems, interfaces and procedures*

# NASA Exploratory Technologies for the NAS
## FY04 - 08

*Develop and demonstrate NASA exploratory technologies for the National Airspace System to meet projected growth in passenger demand beyond 2010*

*Advanced Communications, Navigation & Surveillance*



*Distributed Traffic Management*

*Human Measures & Performance*

*Wake Vortex Solutions*

*ATM Automation Technology*